

ABSTRACT

A marine acoustic source system has relatively densely packed energy sources arrayed in a tandem-like fashion along a horizontal plane. Preferably, a longitudinal axis of each source lies orthogonal to a pre-determined towing direction. The system includes protective tubes that encloses supply lines and auxiliary equipment, and a harness. The harness provides the primary mechanical connection for towing the sources through the water. To minimize bending of the supply lines, connectors having angular portions connect the sources to the supply lines. Further, the sources can be arranged such that source connection interfaces for receiving power, hydraulic fluid, or data point alternately in opposing directions. During use, the sources, *e.g.*, air guns, are supported at a predetermined depth beneath the water's surface by a floatation buoy. Upon activation, the sources of a cluster each release individual air bubbles into the water. Because the air guns are relatively densely packed, the individual air bubbles coalesce into a single bubble that produces the desired acoustical signal.